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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/656,868	09/07/2000	Dale E. Veeneman	00-8015	1105

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EXAMINER	
MATTIS, JASON E	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 11/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/656,868	VEENEMAN, DALE E.	
	Examiner	Art Unit	
	Jason E. Mattis	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 9/6/05.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-36 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 36 is/are allowed.

6)☒ Claim(s) 1-10, 14-27, and 31-35 is/are rejected.

7)☐ Claim(s) 11-13 and 28-30 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2/02.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Request for Continued Examination filed on 9/6/05. Claims 1-36 are currently pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6, 8, 14, 17-23, 25, 31, and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. (U.S. Pat. 6625255 B1) in view of Bell Laboratories – Transmission Systems For Communications (U).

With respect to claims 1, 17, and 34, Green et al. discloses a method, system, and computer readable medium storing instructions executable by one or more processors to perform a method for estimating digital subscriber line (DSL) performance on an existing telephone loop **(See the abstract and column 5 line 21 to column 6 line 29 of Green et al. for reference to a method, system, and computer program product for predicting capability of a DSL loop)**. Green et al. also discloses obtaining a topological description of the existing telephone loop **(See column 7 lines**

42-61 of Green et al. for reference to obtaining information about similar loops, which are existing telephone loops, including information about location and transfer function characteristics). Green et al. further discloses identifying an equivalent physical test loop of a particular length and gauge different from the existing telephone loop and being equivalent to the existing telephone loop based on the topological description of the existing telephone loop **(See column 7 lines 42-61 and column 3 line 32 to column 4 line 14 of Green et al. for reference to identifying a reference loop, which is a test loop of a particular length and gauge, with the reference loop being an equivalent loop for one or more similar loops based on characteristics of the similar loops)**. Green et al. also discloses determining DSL performance for the equivalent loop by considering physical characteristics of the equivalent loop and predicting performance for the existing telephone loop based on the determined DSL performance of the equivalent loop **(See column 4 lines 15-32 of Green et al. for reference to testing the reference loop to develop an attenuation versus frequency profile, a flat noise figure, and a coupled noise profile and other performance characteristics of the reference loop and for reference to extrapolating the characterization of the reference loop to other similar loops to determine performance characteristics of the similar loops)**. Green et al. does not specifically disclose that the test loop is limited to a straight loop.

With respect to claim 18, Green et al. discloses a system, for estimating digital subscriber line (DSL) performance on customer telephone loops **(See the abstract and column 5 line 21 to column 6 line 29 of Green et al. for reference to a system for**

predicting capability of a DSL loop). Green et al. also discloses a memory configured to store instructions and a processor configured to execute the instructions **(See column 5 lines 34-40 and Figure 2 of Green et al. for reference the computer system 200 having a ROM 215, which is a memory storing instructions, and a CPU 205, which is a processor executing the instructions)**. Green et al. further discloses receiving information regarding the customer telephone loops **(See column 7 lines 42-61 of Green et al. for reference to obtaining information about similar loops, which are customer telephone loops, including information about location and transfer function characteristics)**. Green et al. also discloses identifying equivalent physical test loops, different from the customer telephone loops, of one or more particular lengths and gauges and being equivalent to the customer telephone loops based on the received information **(See column 7 lines 42-61 and column 3 line 32 to column 4 line 14 of Green et al. for reference to identifying a reference loops, which are test loops of particular lengths and gauges, with the reference loops being equivalent loops for one or more similar loops based on characteristics of the similar loops)**. Green et al. further discloses determining DSL performance for the equivalent loops by considering physical characteristics of the equivalent loops and predicting performance for the customer telephone loops based on the determined DSL performance of the equivalent loops **(See column 4 lines 15-32 of Green et al. for reference to testing the reference loops to develop an attenuation versus frequency profile, a flat noise figure, and a coupled noise profile and other performance characteristics of the reference loops and for reference to**

extrapolating the characterization of the reference loops to other similar loops to determine performance characteristics of the similar loops). Green et al. does not specifically disclose that the test loops are limited to a straight loops.

With respect to claim 35, Green et al. discloses a method for estimating digital subscriber line (DSL) performance on a telephone line **(See the abstract of Green et al. for reference to a method for predicting capability of a DSL loop)**. Green et al. also discloses identifying a cable of a particular length and a particular gauge that corresponds to the telephone line **(See column 7 lines 42-61 and column 3 line 32 to column 4 line 14 of Green et al. for reference to identifying a reference loop, which is a test loop of a particular length and gauge, with the reference loop being an equivalent loop for one or more similar loops, which are telephone lines, based on characteristics of the similar loops)**. Green et al. further discloses determining DSL performance for the cable by considering physical characteristics of the cable and predicting performance for the telephone line based on the determined DSL performance of the cable **(See column 4 lines 15-32 of Green et al. for reference to testing the reference loop to develop an attenuation versus frequency profile, a flat noise figure, and a coupled noise profile and other performance characteristics of the reference loop and for reference to extrapolating the characterization of the reference loop to other similar loops to determine performance characteristics of the similar loops)**. Green et al. does not specifically disclose that the cable is limited to a straight cable.

With respect to claims 1, 17-18, and 34-35, the reference from Bell Laboratories, in the field of communications, teaches a method of converting a non-straight loop circuit arrangement with bridge taps into an equivalent straight loop circuit without bridge taps that may be tested with the straight loop having the same characteristics as the non-straight loop **(See pages 231-232 and Figure 10-17 of Bell for reference to converting an original loop to a straight loop that can be tested and has the same performance characteristics as the original loop)**. Using an equivalent straight loop in the place of another loop has the advantage of simplifying the connections of the straight loop to be tested such that the tests performed on the loop may be performed more easily.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Bell Laboratories – Transmission Systems For Communications, to apply the conversion method from bridged tap loop cable circuit to a straight loop cable circuit to the methods and system of Green et al., with the motivation to simplify the DSL performance estimation process.

With respect to claims 2 and 19, Green et al. discloses that obtaining includes receiving length **(See column 4 lines 33-55 of Green et al. for reference to obtaining information about the loop length of similar loops)**.

With respect to claims 3 and 20, Green et al. discloses determining an insertion loss of the existing loop based on the topological description of the existing loop **(See column 6 line 61 to column 7 line 15 and Figure 4 of Green et al. for**

reference to determining attenuation of similar loops based on the a simulation of the characteristics of the similar loops).

With respect to claims 4, 8, 21, and 25, Green et al. discloses determining a DSL capacity of the existing telephone loop using the insertion loss and the topological description of the existing loop **(See column 6 line 61 to column 7 line 25 and Figure 4 of Green et al. for reference to determining data transmission capacity of the similar loops based on the attenuation and similar loop characteristics)**.

With respect to claims 5-6 and 22-23, Green et al. discloses crating a loss curve using the insertion loss and integrating the loss curve over a plurality of frequencies to determine the DSL capacity of the existing loop **(See column 6 line 61 to column 7 line 41 and Figure 4 of Greene et al. for reference to determining data rate capacity over a signal frequency range using an attenuation versus frequency calculation, which is a loss curve, that is summed, or integrated, to determine a safe data transmission rate, or capacity, of the similar loops)**.

With respect to claims 14 and 31, Green et al. discloses selecting DSL performance data from a plurality of previously obtained DSL performance data **(See column 4 lines 33-55 of Green et al. for reference to using performance data that previously obtained and stored in a database)**.

4. Claims 7, 9-10, 24, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Bell as applied to claims 1-6, 8, 14, 17-23, 25, 31, and 34-35 above, and further in view of Liu et al. (U.S. Pat. 6266395 B1).

With respect to claims 7, 9-10, 24, and 26-27, the combination of Green et al. and Bell does not specifically disclose determining uplink and downlink equivalent loops and loop capacity separately.

With respect to claims 7, 9-10, 24, and 26-27, Liu et al., in the field of communications, discloses determining uplink and downlink equivalent loops and loop capacity separately **(See column 7 line 55 to column 8 line 4 of Liu et al. for reference to determining upstream and downstream loops and bandwidths, or capacities, separately)**. Determining uplink and downlink equivalent loops and loop capacity separately has the advantage of more accurately modeling a DSL loop since upstream and downstream capacities may differ significantly **(See column 8 lines 1-4 of Liu et al. for reference to it being preferable to estimate values for both upstream and downstream bandwidth)**.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work Liu et al., to determining uplink and downlink equivalent loops and loop capacity separately, as suggested by Liu et al., to the methods and system of the combination of Green et al. and Bell, with the motivation being to more accurately model a DSL loop since upstream and downstream capacities may differ significantly.

5. Claims 15-16 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Bell as applied to claims 1-6, 8, 14, 17-23, 25, 31, and 34-35 above, and further in view of Milbrandt (U.S. Pat. 6633545 B1).

With respect to claims 15-16 and 32-33, the combination of Green et al. and Bell does not teach the selecting DSL performance data under different cross talk and spectral density conditions.

With respect to claims 15-16 and 32-33, Milbrandt, in the field of communications, teaches a method and system for determining the data rate capacity of a DSL line, which incorporates the effects of power spectral density and cross talk **(See column 26 line 37 to column 27 line 15 of Milbrandt)**. This is equivalent to selecting DSL performance data from a plurality of DSL performance data for loops of different lengths under different cross talk conditions, determining spectral interference conditions associated with the existing telephone loop, and predicting the DSL performance of the existing telephone loop based on the DSL performance for the equivalent loop and the determined spectral interference conditions. These features have the advantage of improving a supplier's ability to more accurately predict the DSL performance that the user can expect over a given subscriber loop.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the data rate determining features of Milbrandt, to apply the PSD and cross talk features of Milbrandt to the method and system of Green et al. and Bell, with the motivation to provide better service to the customer.

Allowable Subject Matter

6. Claim 36 is allowed.

7. Claims 11-13 and 28-30 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

Claims 11, 28, and 36 are/would be allowable since the prior art of record fails to anticipated or render obvious the claimed limitation "using the DSL capacity to identify the equivalent loop" of claim 11 and similar limitations in both claims 28 and 36.

Claims 12-13 would be allowable since they depend on claim 11.

Claims 29-30 would be allowable since they depend on claim 28.

Response to Arguments

9. Applicant's arguments (See the Request for Continued Examination) filed 9/6/05, with respect to the rejections of claims 1-36 under Liu et al. (U.S. Pat. 6266395 B1) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Green et al. (U.S. Pat. 6625255 B1), as shown above. Further, the arguments that Bell, Millbrandt, and Tennyson do not cure the deficiency in Liu et al. are now moot due to the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason E. Mattis whose telephone number is (571) 272-3154. The examiner can normally be reached on M-F 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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